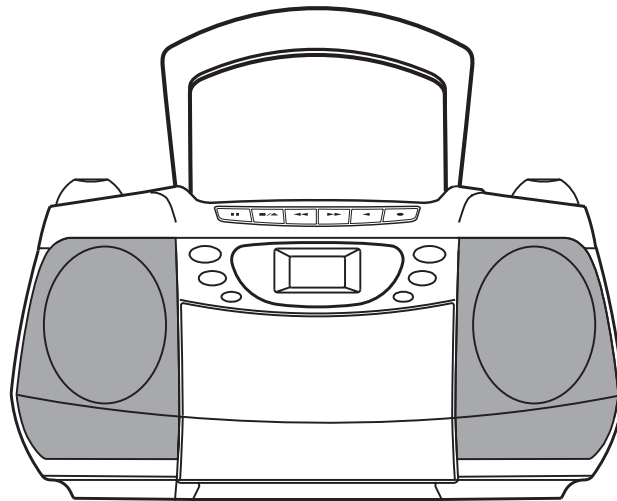


Service Manual

CD Portable Radio Cassette Recorder

MCD-ZX200F (XE)



CONTENTS

PRODUCT CODE No.
164 128 00

Laser beam safety precaution	1
IC Block Diagram & Description	1,9
Tuner Adjustments	2
Wiring Connection	3
Exploded View (Cabinet & Chassis)	4
Parts List	6
Schematic Diagram	11
Wiring Diagram	16
Block Diagram	rear

LASER BEAM SAFETY PRECAUTION

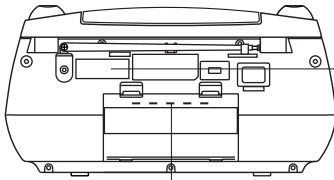
- Pickup that emits a laser beam is used on this CD section.

CAUTION :

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

LASER OUTPUT 0.6 mW Max. (CW)

WAVE LENGTH 790 nm




CAUTION-INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.

ADVARSEL-USYNLIG LASER STRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION, UNDGÅ UDSÆTTELSE FOR STRÅLING.

VARNING-OSYNLIG LASER STRÅLNING NÅR DENNA DEL ÄR ÖPPNAD OCH SPÄRR ÄR URKOPPLAD. STRÅLEN ÄR FARLIG.

VORSICHT! -UNSICHTBARE LASERSTRAHLUNG TRITT AUS, WENN DECKEL GEÖFFNET UND ENN SICHERHEITSVERRIEGELUNG ÜBERBRÜCKT IST. NICHT, DEM STRAHL AUSSETZEN.

VARO !-Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.



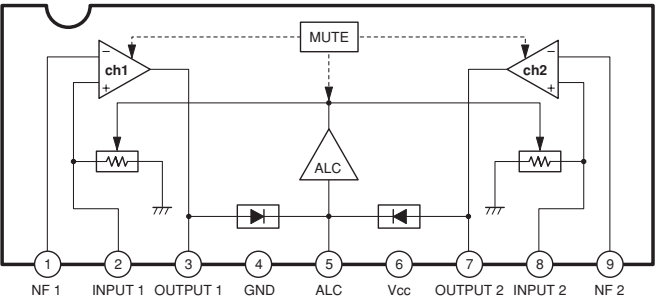
CLASS 1 LASER PRODUCT

LUOKAN 1 LASERLAITE

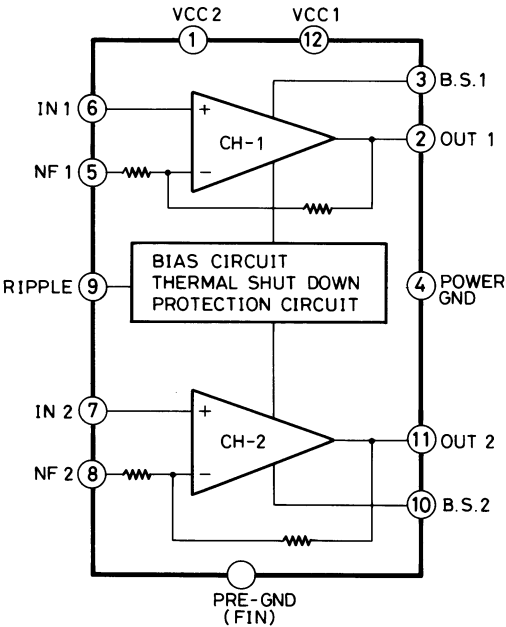
KLASS 1 LASERAPPARAT

IC BLOCK DIAGRAM & DESCRIPTION

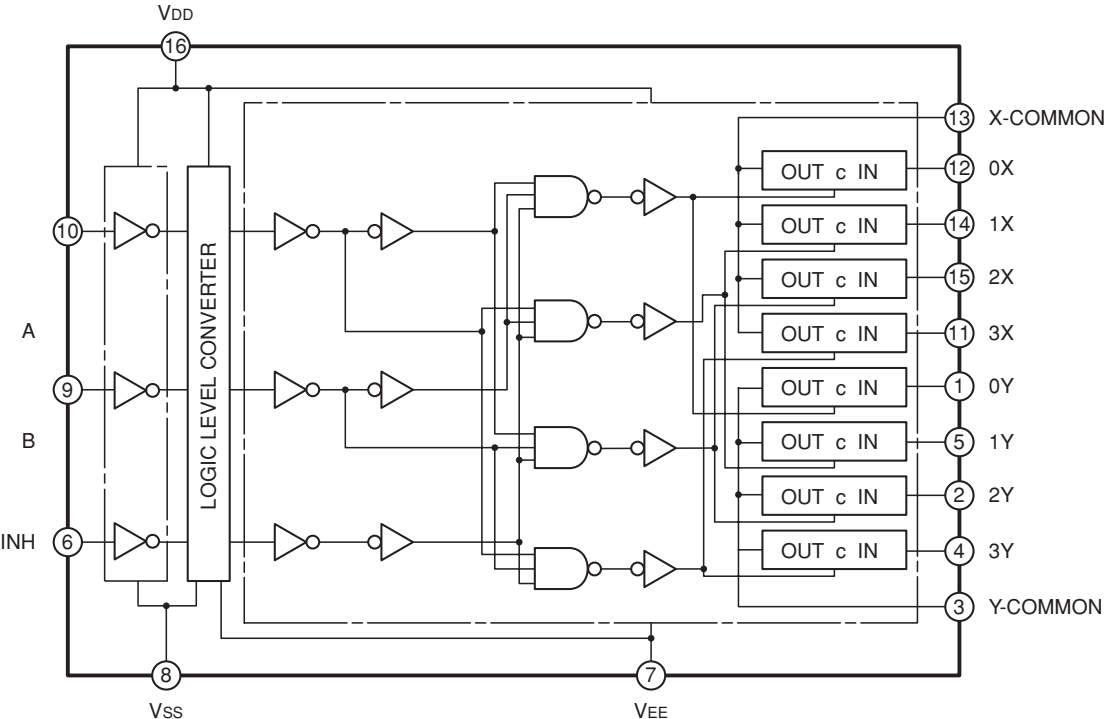
IC201 BA3308 (Pre-Amp.)



IC301 TA8227 (Power Amp.)



IC501 TC4052(Differential 4-Channel Multiplexer)



TUNER ADJUSTMENTS

Use a plastic screw driver for adjustments.

Adjust the intermediate frequency of AM and FM to the frequency of ceramic filter.

Set of unit

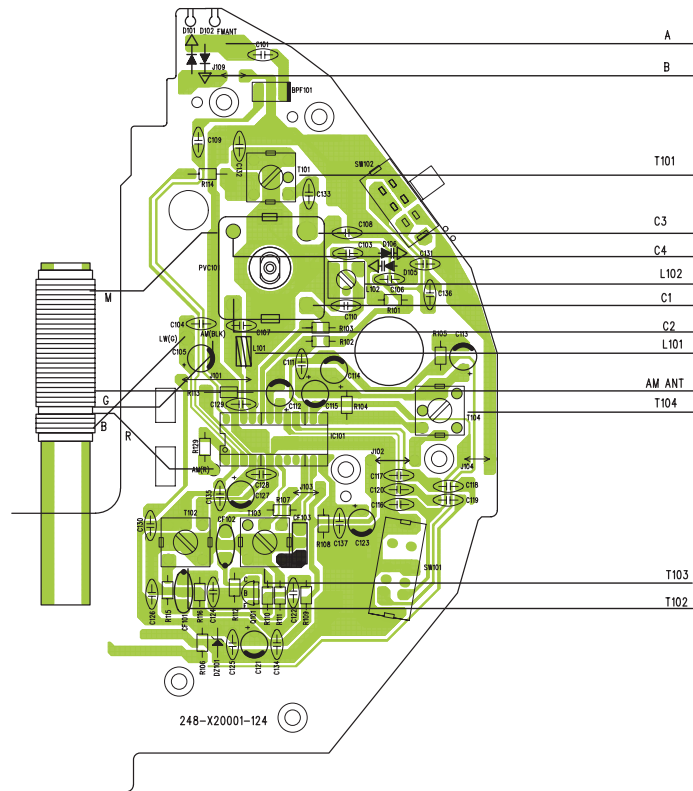
Supply voltage : DC 12.0V

Speaker impedance : 8 ohms

Standard output : 50 mW

Function switch : RADIO

a. Parts Location



a. AM Adjustment

Band switch : AM

Step	Adjusting Circuit	Connections		SG Frequency	Position of Tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	IF	Closed the output terminal by sweep generator, it place to MW ANT	Connect sweep generator to (19)IC101 (H) 0 and C112(E)	465KHz	Low	T103	Max.
2	Tuning coverage	Connect AM SG to test loop	Connect VTVM to speaker terminals.	515 KHz	Low end	T101	
3				1640 KHz	High end	C3	Max.
4	Tracking	Connect AM SG to test loop	Connect VTVM to speaker terminals	600 KHz	600 KHz	MW ANT	
5				1400 KHz	1400 KHz	C4	

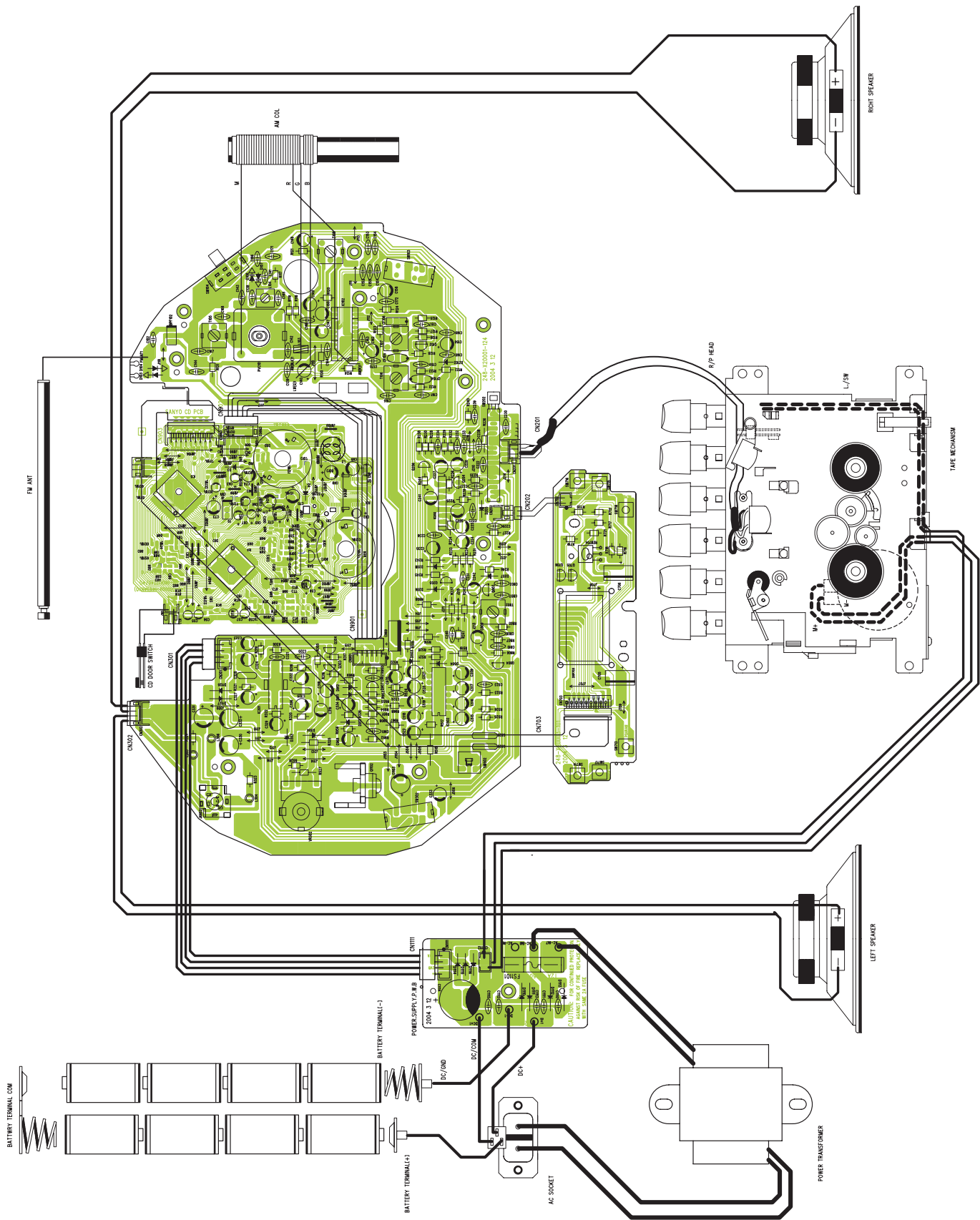
b. FM Adjustment

Band switch : FM

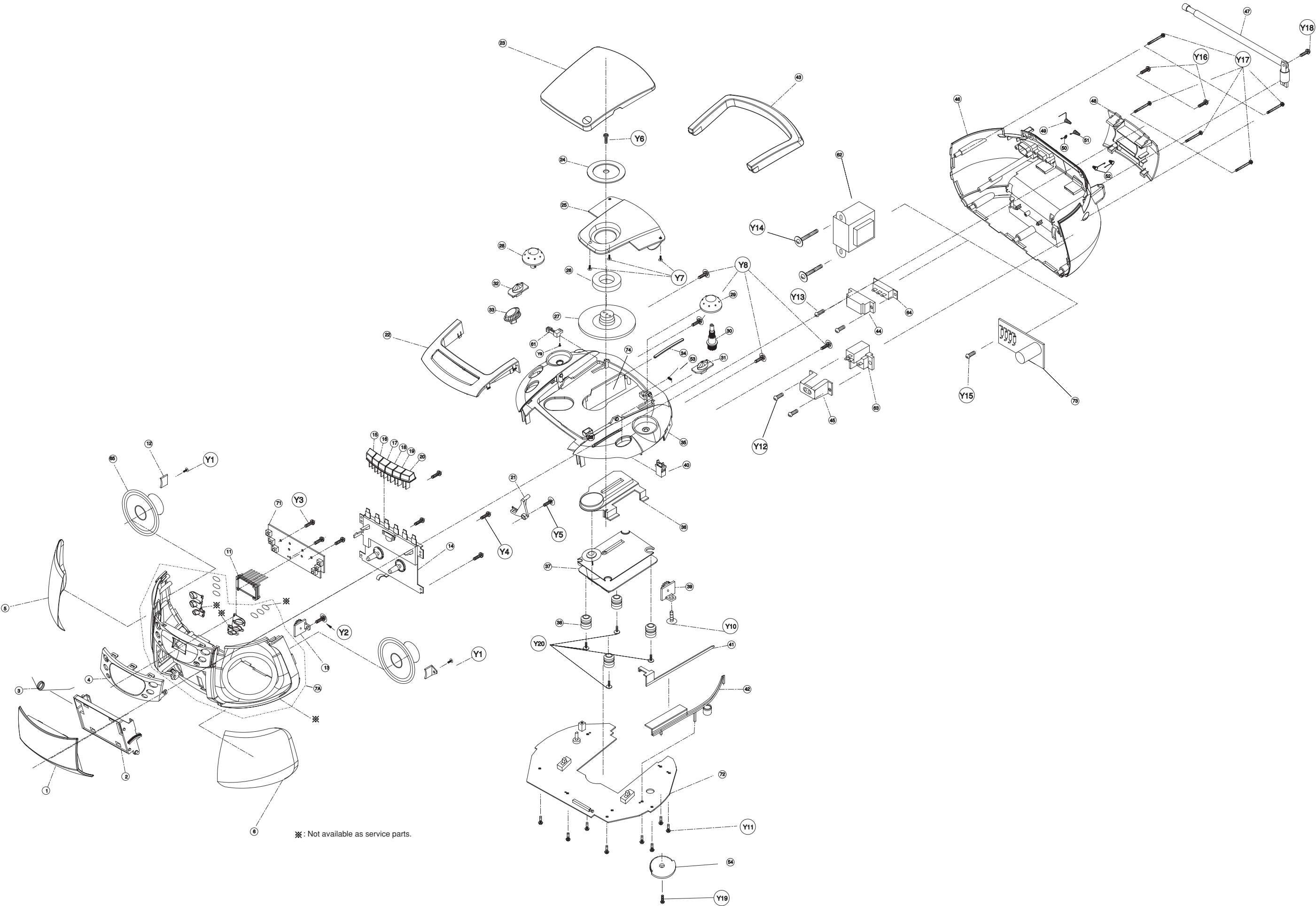
FM Dummy antenna : 75 ohms unbalance

Step	Adjusting Circuit	Connection		SG Frequency	position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	IF	Connect sweep generator to IC101 IC101(22)pin (E)	Connect VTVM to generator to (19)PIN IC101(H) and C112(E)	10.7MHz	Low	T104 and T102	Max.
2	Tuning coverage	Connect FM SG to FM ANT(A) & D102(B)	Connect VTVM to speaker terminals.	87.0 MHz	Low end	L102	
3				109.0 MHz	High end	C1	Max.
4	Tracking	Connect FM SG to FM ANT(A) & D102(B)	Connect VTVM to speaker terminals.	90.0 MHz	90.0 MHz	L101	
5				106.0 MHz	106.0 MHz	C2	

WIRING CONNECTION



This is a basic wiring connection.



※: Not available as service parts.

PARTS LIST

PRODUCT SAFETY NOTICE

EACH PRECAUTION IN THIS MANUAL SHOULD BE FOLLOWED DURING SERVICING. COMPONENTS IDENTIFIED WITH THE IEC SYMBOL Δ IN THE PARTS LIST AND THE SCHEMATIC DIAGRAM DESIGNATE COMPONENTS IN WHICH SAFETY CAN OF SPECIAL SIGNIFICANCE. WHEN REPLACING A COMPONENT IDENTIFIED , USE ONLY THE REPLACEMENT PARTS DESIGNATED, OR PARTS WITH THE SAME RATINGS OF RESISTANCE, WATTAGE OR VOLTAGE THAT ARE DESIGNATED IN THE PARTS LIST IN THIS MANUAL. LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS MUST BE MADE TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE PRODUCT TO THE CUSTOMER.

CAUTION : Regular type resistors and capacitors are not listed. To know those values, refer to the schematic diagram.
Regular type resistors are less than 1/4W carbon type and 0 ohm chip resistors.
Regular type capacitors are less than 50V and less than 1000μF of Ceramic type and Electrolytic type.

PACKING & ACCESSORIES

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
	645 069 7319	INSTRUCTION MANUAL	53	645 042 0351	CD DOOR SPRING
	645 069 7326	QUICK GUIDE	54	645 069 7173	TUNING DRUM
	645 069 7340	POLY BAG,PWR CORD			
	645 044 1943	POLY BAG,I/B			
	645 069 7357	POLY BAG,UNIT			
	645 069 7388	POLY FOAM,2 PCS LEFT&RIGHT			
	645 069 7401	GIFT BOX			
	Δ 645 069 6534	POWER CORD,VDE			

CABINET & CHASSIS

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
1	645 069 7005	CASS DOOR	Y5	645 069 6794	SCREW 3X10,SPEAKER CLIP R
2	645 069 7197	CASS DOOR BRACKET	Y6	645 069 6770	SCREW 2.6X8,CD DECK
3	645 062 0478	CASS DOOR SPRING	Y7	645 062 1086	SCR 2X5,CD DOOR
4	645 069 7265	DISPLAY LENS	Y8	645 069 6787	SCREW 3X10,CASS DECK
5	645 069 7364	SPEAKER GRILL LEFT	Y9	645 069 6824	SCREW 2X6,LEAF SWITCH
6	645 069 7371	SPEAKER GRILL RIGHT	Y10	645 033 0247	SCR 2.6X8,CD DOOR GEAR
7A	645 069 6411	ASSY CABINET	Y11	645 023 6594	SCREW ST 3X8,MAIN PCB
11	645 069 7272	LCD BRACKET	Y12	645 027 1144	SCR 2.8X12, TOP CAB TO FRONT CAB
12	645 069 7241	SPEAKER CLIP L	Y14	645 069 6800	SCREW 3X20, POWER TRANSFORMER
13	645 033 0407	CASS LID GEAR	Y15	645 023 6594	SCREW ST 3X8,RECTIFER BOARD
15	645 069 7104	KNOB CASS PAUSE	Y16	645 069 6787	SCREW 3X10, TOP CAB TO BACK CAB
16	645 069 7111	KNOB CASS STOP/EJECT	Y17	645 069 6817	SCREW 3X25, BACK CAB TO FRONT CAB
17	645 069 7128	KNOB CASS FFWD	Y18	645 027 1236	SCR 3X8,ROD ANTENNA
18	645 069 7135	KNOB CASS REWIND	Y19	645 069 6831	SCREW 2.6X6,TUNING DRUM
19	645 069 7142	KNOB CASS PLAY	Y20	645 069 6770	SCREW 2.6X8,CD DECK
20	645 069 7159	KNOB CASS RECORD			
21	645 069 7166	RECORDING BRACKET			
22	645 069 7203	DISPLAY PANEL			
23	645 069 7258	CD DOOR LENS			
24	645 033 3996	CD CHUCK M			
25	645 069 7210	CD DOOR			
26	645 033 3972	CD MAGNET RING			
27	645 033 3989	CD CHUCK A			
28	645 069 7067	KNOB VOLUME,ROTARY			
29	645 069 7036	KNOB TUNING,ROTARY			
30	645 069 7180	TUNING KNOB GEAR			
31	645 069 7074	KNOB BAND,SLIDE			
32	645 069 7081	KNOB FUNCTION,PUSH			
33	645 069 7050	KNOB BASS,PUSH			
34	645 069 7043	DIAL LENS			
35	645 069 7302	CABINE TOP			
36	645 069 6961	CD MECKANISM COVER			
37	645 069 6893	CD DECK MECHANISM			
38	645 033 3446	RUBBER SILICON,FOR CD DECK			
39	645 033 0407	CD LID GEAR			
40	645 069 7296	CD DOOR LOCK			
41	645 069 7098	POINTER			
42	645 069 6992	POINTER BRACKET			
43	645 069 7029	HANDLE			
45	645 033 0391	AC SKT COVER			
46	645 069 6985	CABINET BACK			
48	645 069 7012	BATTERY DOOR			
49	645 027 2134	BATT TERMINAL SPRING(+)			
50	645 033 0926	BATT SPRING(+)			
51	645 033 1565	BATT SPRING			
52	645 027 2134	BATT TERMINAL SPRING(+)			

PARTS LIST

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
	645 069 6763	FFC CABLE 18P, CTL CN703 TO CD DECK	L0102	645 024 1031	FTZ COIL,BH-81228712
	645 069 6756	2P HSG, MAIN CN202 TO CTL CN702	L0105	645 033 4757	AM COIL
	645 069 6749	2P HSG, CD BD CN904 TO CD LEAF S	PC101	645 026 6676	PVC,PVC101
			Q0101	645 027 3797	TR 9018H
			Q0201	645 023 6129	TR 9014C
			Q0202	645 023 6129	TR 9014C
			Q0203	645 023 6129	TR 9014C
			Q0301	645 023 6129	TR 9014C
			Q0302	645 023 6129	TR 9014C
			Q0801	645 023 6129	TR 9014C
			Q0802	645 027 0420	TR 8050C
			Q0905	645 023 6129	TR 9014C
			Q0906	645 023 6129	TR 9014C
			Q1101	645 066 5790	IC KA7808
			SW101	645 024 1048	SW SLIDE SK22F03G6,SK22F03G6
			SW102	645 069 6664	SWITCH SILDE,SS22E01G6
			SW201	645 035 0023	RECORDING SW. PS-62D01S
			SW301	645 042 0054	SW SLIDE,SS23E01G6
			SW501	645 042 0030	SW PUSH,PS-8.5X8.5-180G
			T0101	645 026 6669	AM OSC,OSC 1010
			T0102	645 027 0437	FM IFT,IF 0070
			T0103	645 033 3866	AM COIL,IF 2070
			T0104	645 027 0444	FM IFT,IF 0380
			T0801	645 027 0307	BIAS COIL,AC BIAS 3630
			VR301	645 042 0085	ROTARY VR

CONTROL P.W.BOARD ASSY

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
71	614 331 2482	ASSY,PWB,CONTROL(Only initial)			
C0701	403 121 2401	ELECT 22U M 16V			
C0702	403 121 2401	ELECT 22U M 16V			
CN703	645 069 6701	FFC HEADER 18P			
Q0701	645 023 6129	TR 9014C			
Q0702	645 023 6129	TR 9014C			
SW701	645 069 6640	SWITCH TACT,MEMORY			
SW702	645 069 6640	SWITCH TACT,SKIP+			
SW703	645 069 6640	SWITCH TACT,STOP			
SW704	645 069 6640	SWITCH TACT,PALY			
SW705	645 069 6640	SWITCH TACT,SKIP-			
SW706	645 069 6640	SWITCH TACT,REPEAT			
	645 069 7272	LCD BRACKET			
	645 069 6671	LCD DISPLAY			

MAIN P.W.BOARD ASSY

REF.NO.	PART NO.	DESCRIPTION	REF.NO.	PART NO.	DESCRIPTION
72	614 331 2475	ASSY,PWB,MAIN(Only initial)			
BF101	645 055 6937	BAND PASS FILTER,BPF101			
C0117	403 057 8300	POLYESTER 0.012U M 50V			
C0120	403 057 8300	POLYESTER 0.012U M 50V			
C0201	403 059 4409	POLYESTER 2200P M 50V			
C0208	403 061 9003	POLYESTER 4700P M 50V			
C0209	403 059 4409	POLYESTER 2200P M 50V			
C0210	403 060 8908	POLYESTER 0.033U M 50V			
C0211	403 061 9003	POLYESTER 4700P M 50V			
C0213	403 060 8908	POLYESTER 0.033U M 50V			
C0308	403 057 3800	POLYESTER 0.1U M 50V			
C0311	403 057 3800	POLYESTER 0.1U M 50V			
C0513	403 058 6008	POLYESTER 0.15U M 50V			
C0514	403 058 6008	POLYESTER 0.15U M 50V			
C0802	403 061 9003	POLYESTER 4700P M 50V			
C0804	403 059 6908	POLYESTER 0.022U M 50V			
C0806	403 057 1202	POLYESTER 0.01U M 50V			
C0959	403 059 4409	POLYESTER 2200P M 50V			
C0960	403 059 4409	POLYESTER 2200P M 50V			
CF101	645 062 0768	CERAMIC FILTER			
CF102	645 062 0768	CERAMIC FILTER			
CF103	645 044 6955	CERAMIC FILTER			
CN201	645 069 6718	HEADER 4P			
CN302	645 069 6718	HEADER 4P			
D0101	645 023 6099	DIODE 1N-4148			
D0102	645 023 6099	DIODE 1N-4148			
D0105	645 033 3842	DIODE FV1043			
D0201	645 023 6099	DIODE 1N-4148			
D0202	645 023 6099	DIODE 1N-4148			
D0203	645 023 6099	DIODE 1N-4148			
D0204	645 023 6099	DIODE 1N-4148			
D0301	645 023 6112	RECTIFIER 1N-4001			
D0302	645 023 6099	DIODE 1N-4148			
D0501	645 023 6099	DIODE 1N-4148			
D0502	645 023 6099	DIODE 1N-4148			
D0908	645 023 6099	DIODE 1N-4148			
D0909	645 023 6099	DIODE 1N-4148			
D0910	645 023 6099	DIODE 1N-4148			
D1117	645 023 6112	RECTIFIER 1N-4001			
D1118	645 023 6112	RECTIFIER 1N-4001			
DZ101	645 023 6105	ZENER DIODE			
IC101	645 041 9973	IC LA1824			
IC201	645 032 9906	IC BA3308			
IC301	645 034 9980	IC TA-8227P TOSHIB			
IC501	645 061 9908	IC TC4052BP			
JK601	645 061 9991	ST EARPHONE JACK			
L0101	645 023 6297	VHF COIL			

POWER SUPPLY P.W.BOARD ASSY

REF.NO.	PART NO.	DESCRIPTION
73	614 331 2499	ASSY,PWB,RECTIFIER(Only initial)
C1114	403 135 5702	ELECT 4700U M 25V
CN1111	645 027 0611	WAFER 4P
CN1112	645 033 3682	HEADER 3PINS
D1110	645 023 6112	RECTIFIER 1N-4001
D1111	645 023 6112	RECTIFIER 1N-4001
D1112	645 023 6112	RECTIFIER 1N-4001
D1113	645 023 6112	RECTIFIER 1N-4001
D1114	645 023 6112	RECTIFIER 1N-4001
D1115	645 023 6112	RECTIFIER 1N-4001
D1116	645 023 6112	RECTIFIER 1N-4001
FS1101	645 054 0639	FUSE GLASS TUBE
	645 035 0511	FUSE HOLDER MW1010K, FOR FS1101
	645 027 1298	EYELET

CD P.W.BOARD ASSY

REF.NO.	PART NO.	DESCRIPTION
74	614 331 2505	ASSY,PWB,CD(Only initial)
CN901	645 069 6688	HEADER FFC 16P
CN902	645 051 6542	6P HEADER
CN903	645 069 6695	HEADER FFC 18P
CN904	645 051 6511	2P HEADER
D0901	645 023 6099	DIODE 1N-4148
D0902	645 023 6099	DIODE 1N-4148
IC901	645 055 8436	IC LA9242M
IC902	645 069 6633	IC LC78601RE
IC903	645 069 6879	IC LA6541D
L0901	645 042 0108	CHOKE COIL 26UH
L0902	645 069 6886	INDUCTOR 2.7UH
L0903	645 069 6886	INDUCTOR 2.7UH
L0904	645 069 6886	INDUCTOR 2.7UH
L0905	645 069 6886	INDUCTOR 2.7UH
Q0901	645 061 8246	TR 2SA608NFNPAAT
Q0902	645 033 3514	TR 2SB764D
Q0903	645 069 6862	TRANSISTOR 2SA1342
Q0904	645 069 6862	TRANSISTOR 2SA1342
X0901	645 061 9915	RESONATOR 16.9344MHZ
	645 042 0320	HEAT SINK,FOR CD BD IC903

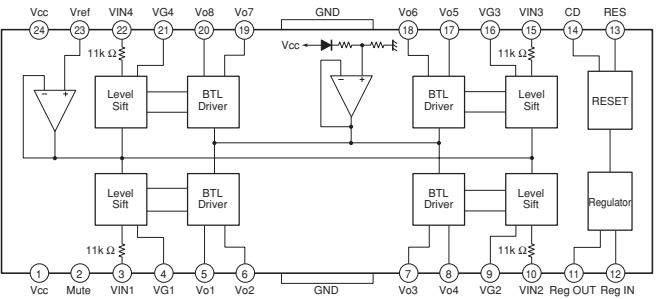
PARTS LIST

CASS DECK MECHANISM ASSY

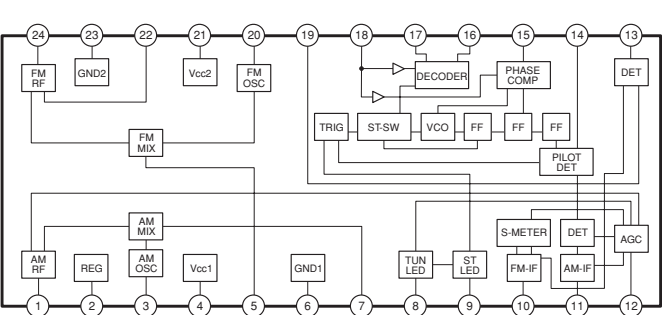
REF.NO.	PART NO.	DESCRIPTION
14	645 050 1814	CASS DECK MECHANISM
	645 050 2101	ASSY,MOTOR
	645 068 7976	ASSY,PINCH ROLLER
	645 050 1784	MAIN BELT
	645 050 1395	RF BELT
	645 018 0637	R/P HEAD
	645 030 6839	E HEAD

IC BLOCK DIAGRAM & DESCRIPTION

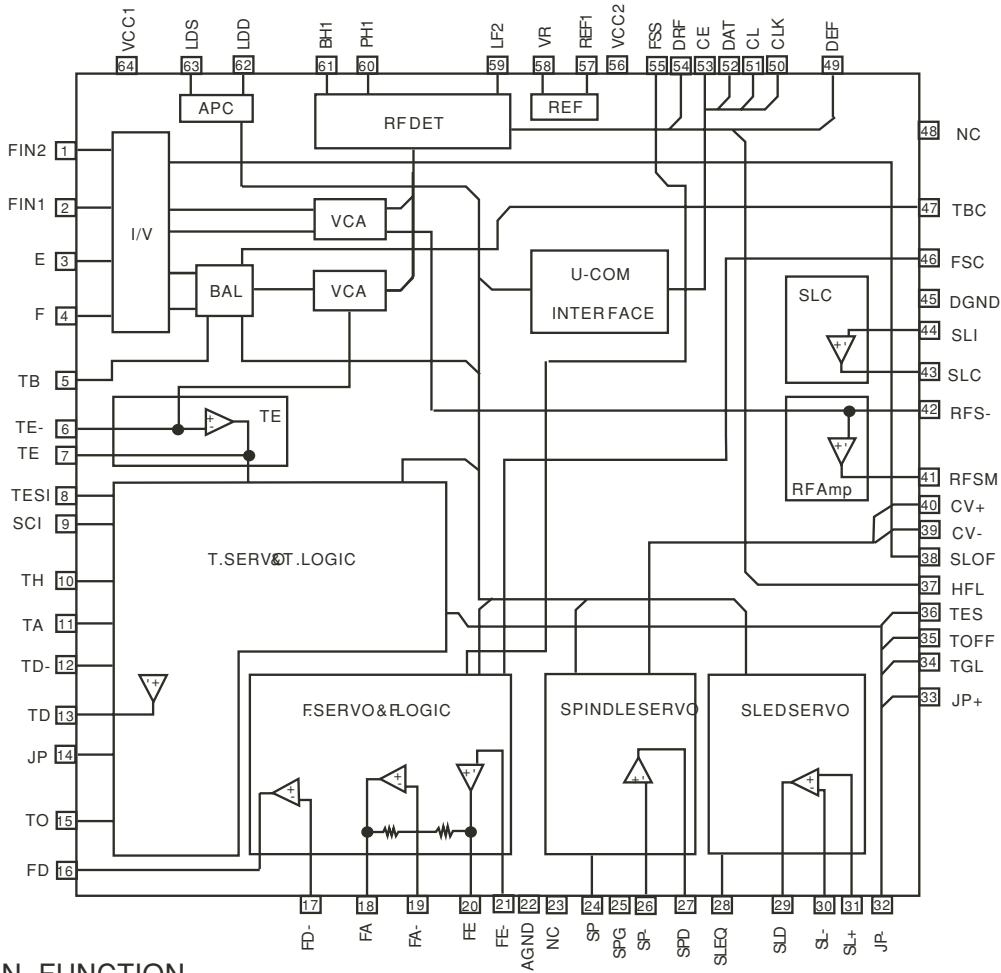
IC903 LA6541 (CD Driver)



IC101 LA1824 (Tuner)



IC901 LA9242M (Servo)

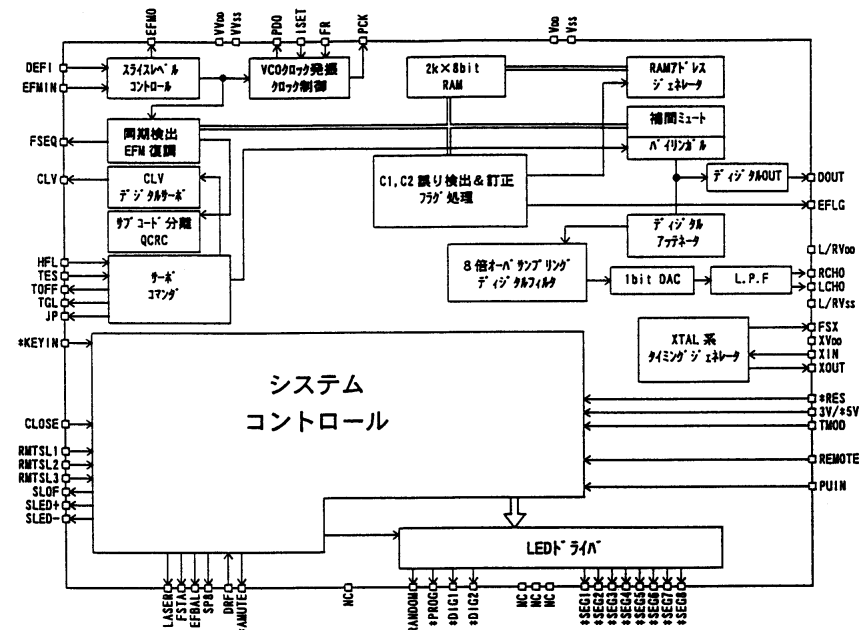


PIN FUNCTION

1	FIN2	11	TA	21	FE-	31	SL+	41	RFSM	51	CL	61	BH1
2	FIN1	12	TD-	22	AGND	32	JP-	42	RFS-	52	DAT	62	LDD
3	E	13	TD	23	NC	33	JP+	43	SLC	53	CE	63	LDS
4	F	14	JP	24	SP	34	TGL	44	SLI	54	DRF	64	Vcc1
5	TB	15	TO	25	SPG	35	TOFF	45	DGND	55	FSS		
6	TE-	16	FD	26	SP-	36	TES	46	FSC	56	Vcc2		
7	TE	17	FD-	27	SPD	37	HFL	47	TBC	57	REF1		
8	TESI	18	FA	28	SLEQ	38	SLOF	48	NC	58	VR		
9	SCI	19	FA-	29	SLD	39	CV-	49	DEF	59	Lf2		
10	TH	20	FE	30	SL-	40	CV+	50	CLK	60	Ph1		

IC BLOCK DIAGRAM & DESCRIPTION

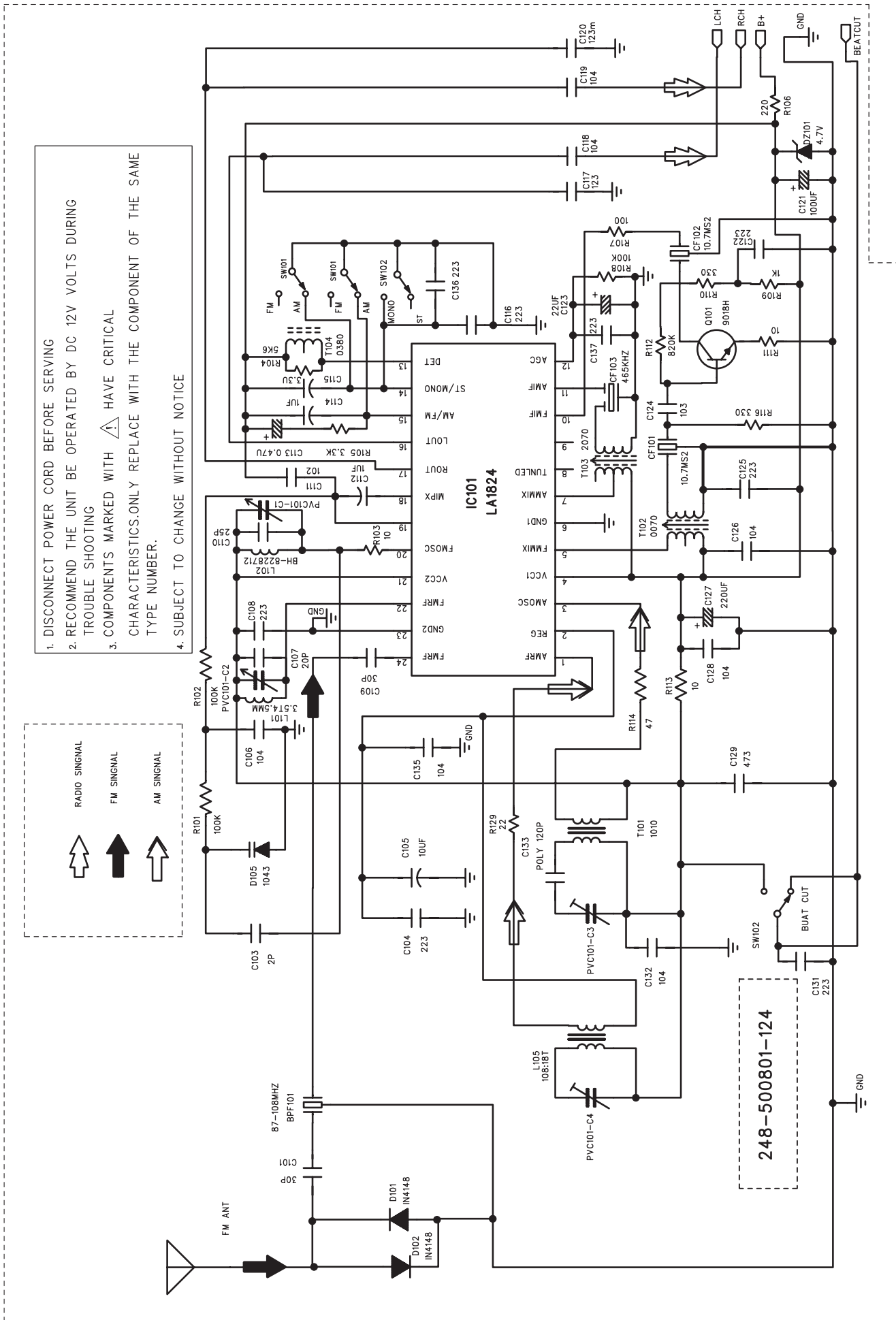
IC902 IC78601RE (ANALOG SIGNAL PROCESSOR)

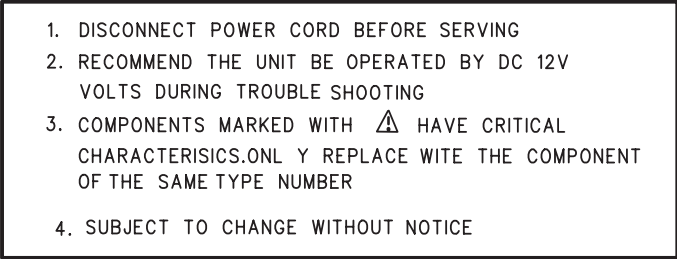


No.	Pin Name	Function
1	DEF1	It is junction in unused time, 0 V defect detecting signal (DEF) input terminal
2	3V / +5V	It is 5 V use 3 V use, L H power supply voltage selection input terminal.
3	PDO	The phase comparison output terminal for outside VCO control(PLL control)
4	VVss	Earth terminal for internal organs VCO control , connecting it to 0 V by all means
5	ISET	Resistance connection terminal for electric current adjustment of PDO output
6	VVdd	Power supply terminal for internal VCO control
7	FR	VCO frequency range adjustment control
8	Vss	Digital series earth terminal. Being connected to 0 V by all means.
9	EFMO	EFM signal output terminal.(Slice level control)
10	EFMIN	EFM signal input terminal.(Slice level control)
11	TMOD	Input terminal for a test. (Being connected to 0 V by all means)
12	CLV	The output terminal for disk motor control. 3 value output
13	HFL	Truck detecting signal input terminal.
14	TES	Tracking error signal input terminal.
15	TOFF	Tracking OFF output terminal
16	TGL	The output terminal for tracking gain change. (Go up gain with L)
17	JP	The output terminal for tracking jump control. (3 value output)
18	LASER	Laser control terminal. (The pull-down resistor internal)
19	FSTA	The FS TA control terminal. (The pull-down resistor internal)
20	EFBAL	EFBAL control terminal. (The pull-down resistor internal)
21	SP8	SP 8 control terminal. (The pull-down resistor internal)
22	Vdd	Digital series power supply terminal
23	FSEQ	The synchronising signal search output terminal. When synchronising signal of inside creation agreed with the synchronising signal which detected it from EFM signal, it become "H"
24	PCK	Clock monitor terminal for EFM data reproduction. (Limited at the time of test mode but)
25	SLOF	Thread OFF control output terminal
26	SLED+	The thread field output terminal
27	SLED-	The thread field output terminal
28	PUIIN	Limit switch sensing input terminal. (The pull-up resistor internal)
29	DOUT	Digital OUT output terminal. (EIAJ format)
30	NC	NC (Being open)
31	*SEG8	The segment output (8) terminal. (The pull-up resistor internal)
32	*SEG7	The segment output (7) terminal. (The pull-up resistor internal)

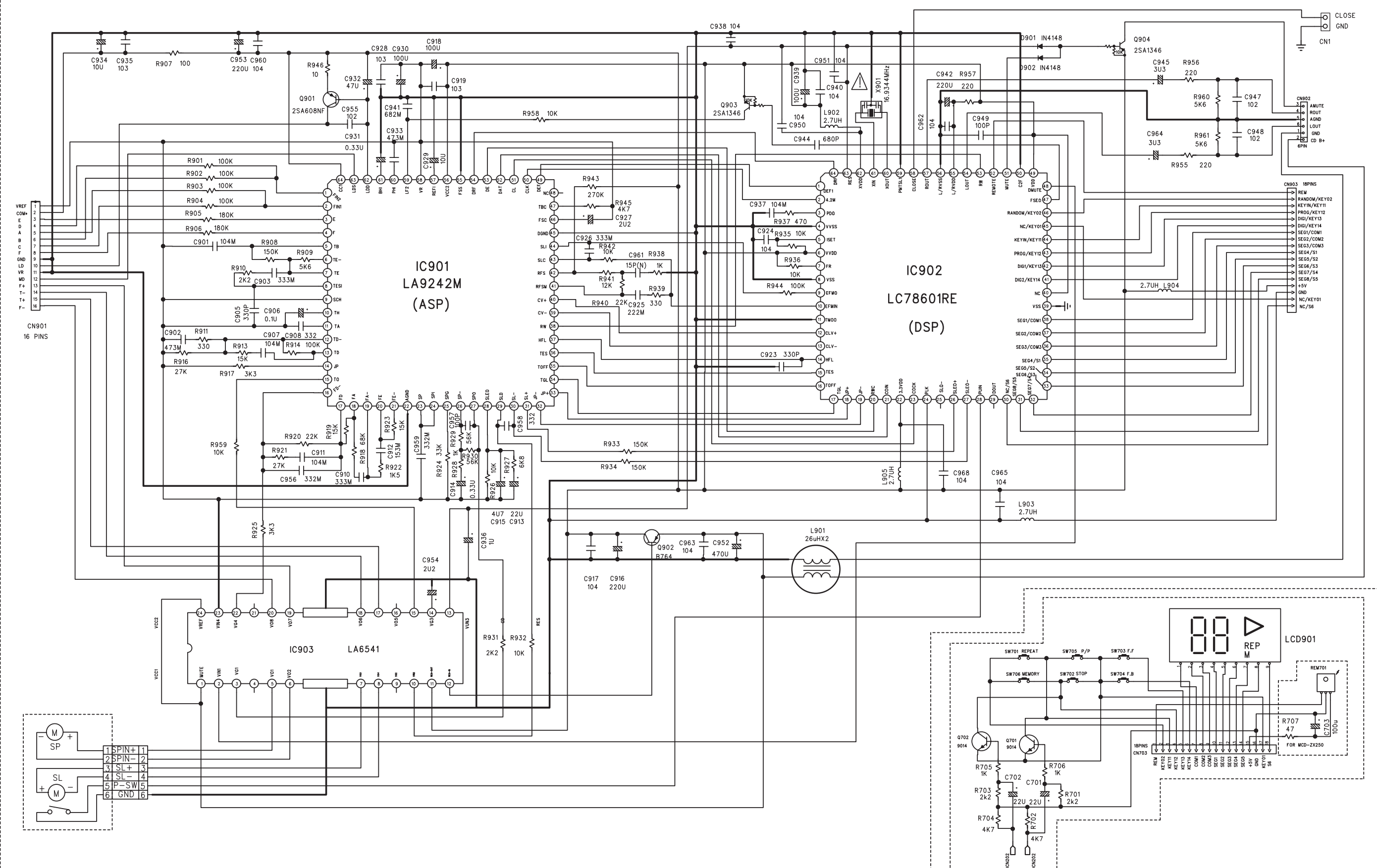
No.	PIN NAME	Function
33	*SEG6	The segment output (6) terminal. (The pull-up resistor internal)
34	*SEG5	The segment output (5) terminal. (The pull-up resistor internal)
35	*SEG4	The segment output (4) terminal. (The pull-up resistor internal)
36	*SEG3	The segment output (3) terminal. (The pull-up resistor internal)
37	*SEG2	The segment output (2) terminal. (The pull-up resistor internal)
38	*SEG1	The segment output (1) terminal. (The pull-up resistor internal)
39	Vcc	Digital series earth terminal. (It is connection in 0 V by all means)
40	NC	NC
41	*DIG2	The common drive output (2) terminal.The pull-up resistor internal
42	*DIG1	The common drive output (1) terminal.The pull-up resistor internal
43	*PROG	Program movement monitor output terminal. (The pull-up resistor internal)
44	*KEYIN	Key matrix input terminal. (The pull-up resistor internal)
45	NC	NC (Being open)
46	NC	NC (Being open)
47	*RANDOM	Random mode display output terminal
48	RMTSL3	The wireless remote controller identification input (3) terminal
49	EFLG	C1 , C2 , 1 fold , 2fold Correction monitor
50	FSX	7.35KHz synchronizing signal output terminal which did dividing from OSC. As a condition, Limited at the time of test mode
51	*AMUTE	audio , Mute output signal
52	REMOTE	Wireless remote controller signal input terminal
53	RMTSL2	Wireless remote controller identification input(2) terminal
54	LCHO	D/A , L channel output terminal
55	L/R Vdd	D/A control power source terminal
56	L/RVss	D/A control earth terminal. (It is connection in 0 V by all means)
57	RCHO	D/A, R channel output terminal
58	CLOSE	Closing switch sensing input terminal. The pull-up resistor internal
59	RMTSL1	Wireless remote controller identification input(1) terminal. (The pull-up resistor internal)
60	Xout	Connection terminal of 16.9344 MHz crystal OSC
61	Xin	Connection terminal of 16.9344 MHz crystal OSC
62	XVdd	Power supply terminal for crystal OSC
63	*RES	Reset input terminal
64	DRF	DRF input terminal

SCHEMATIC DIAGRAM (TUNER)

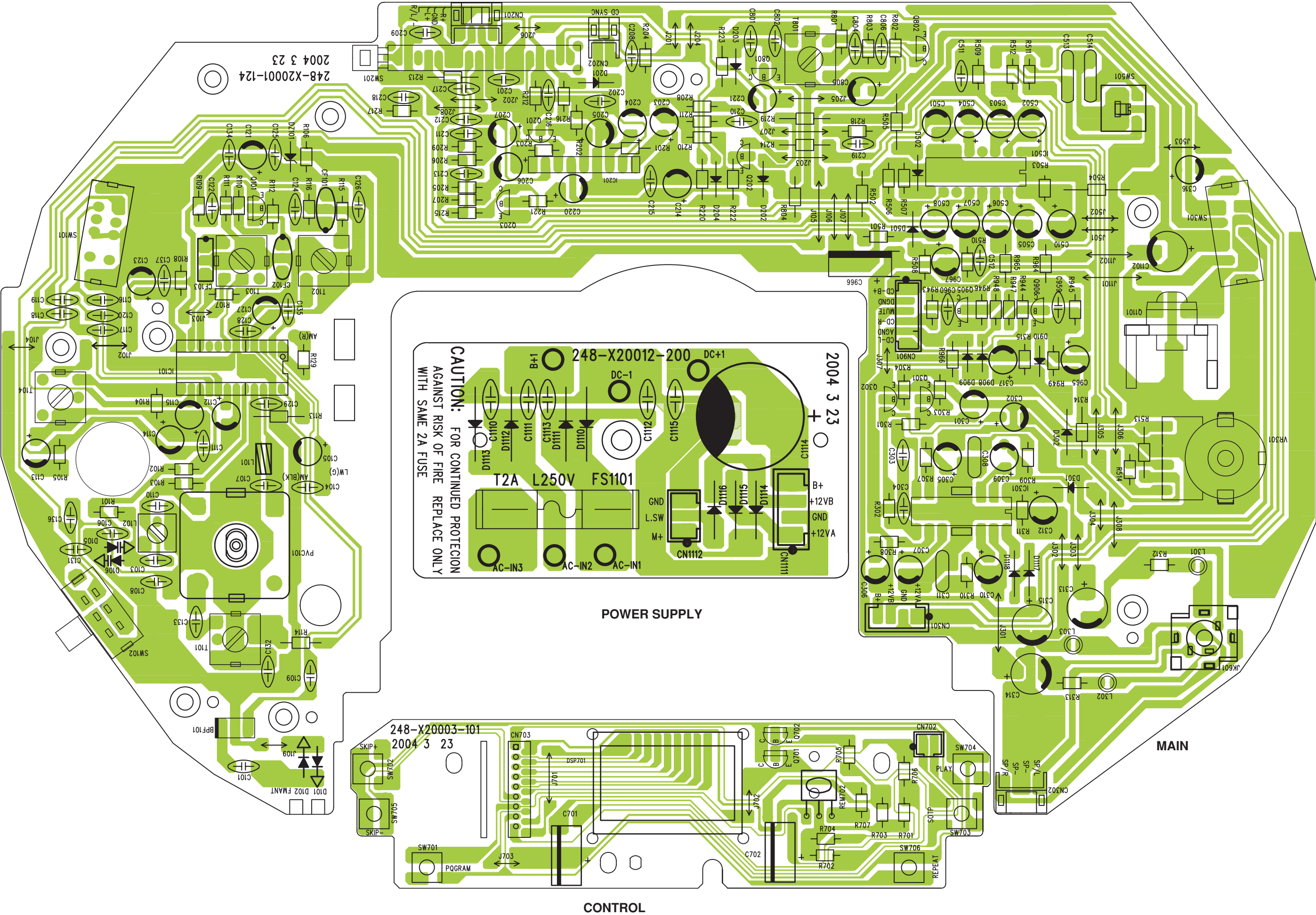


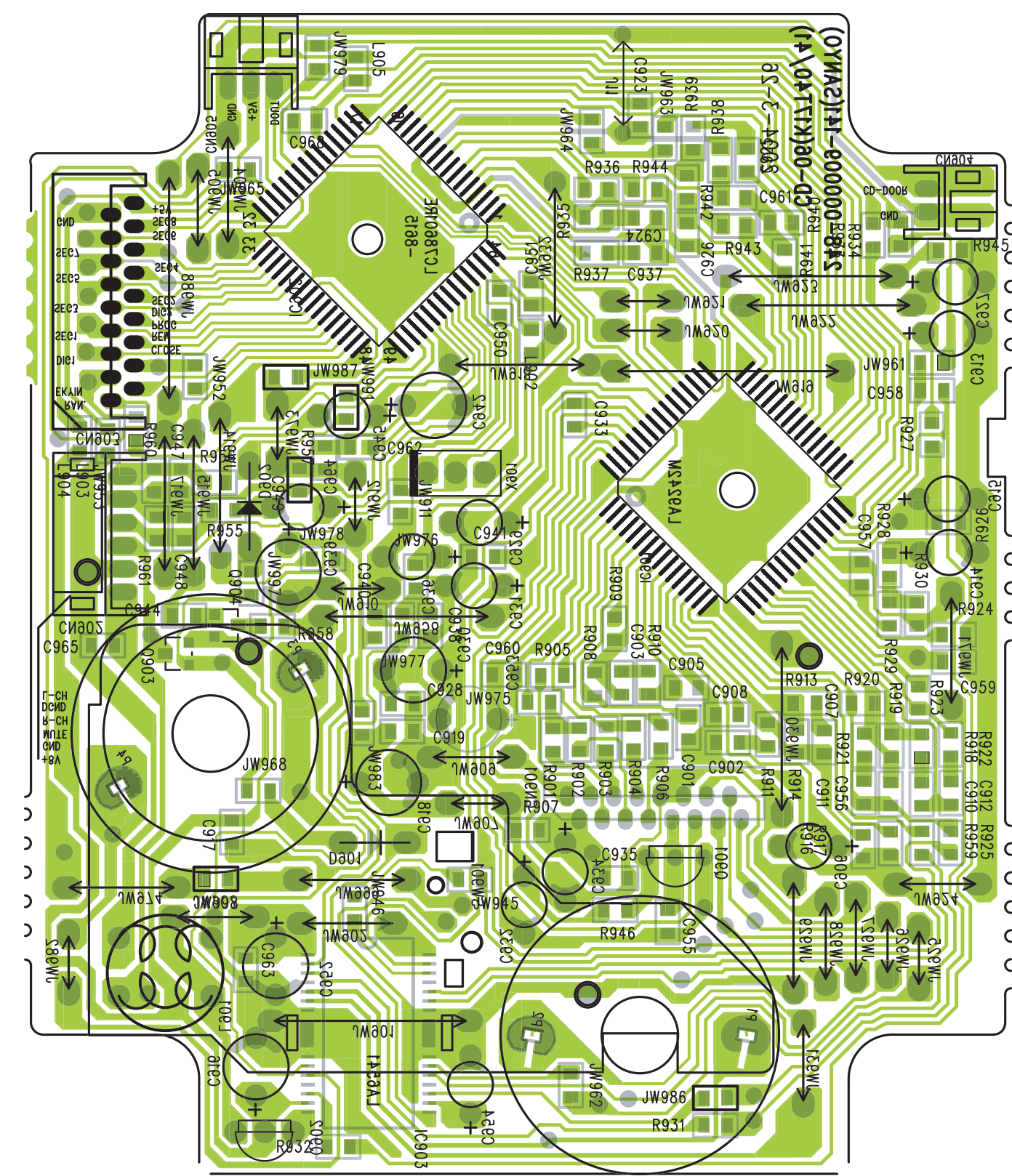


This is a basic schematic diagram.

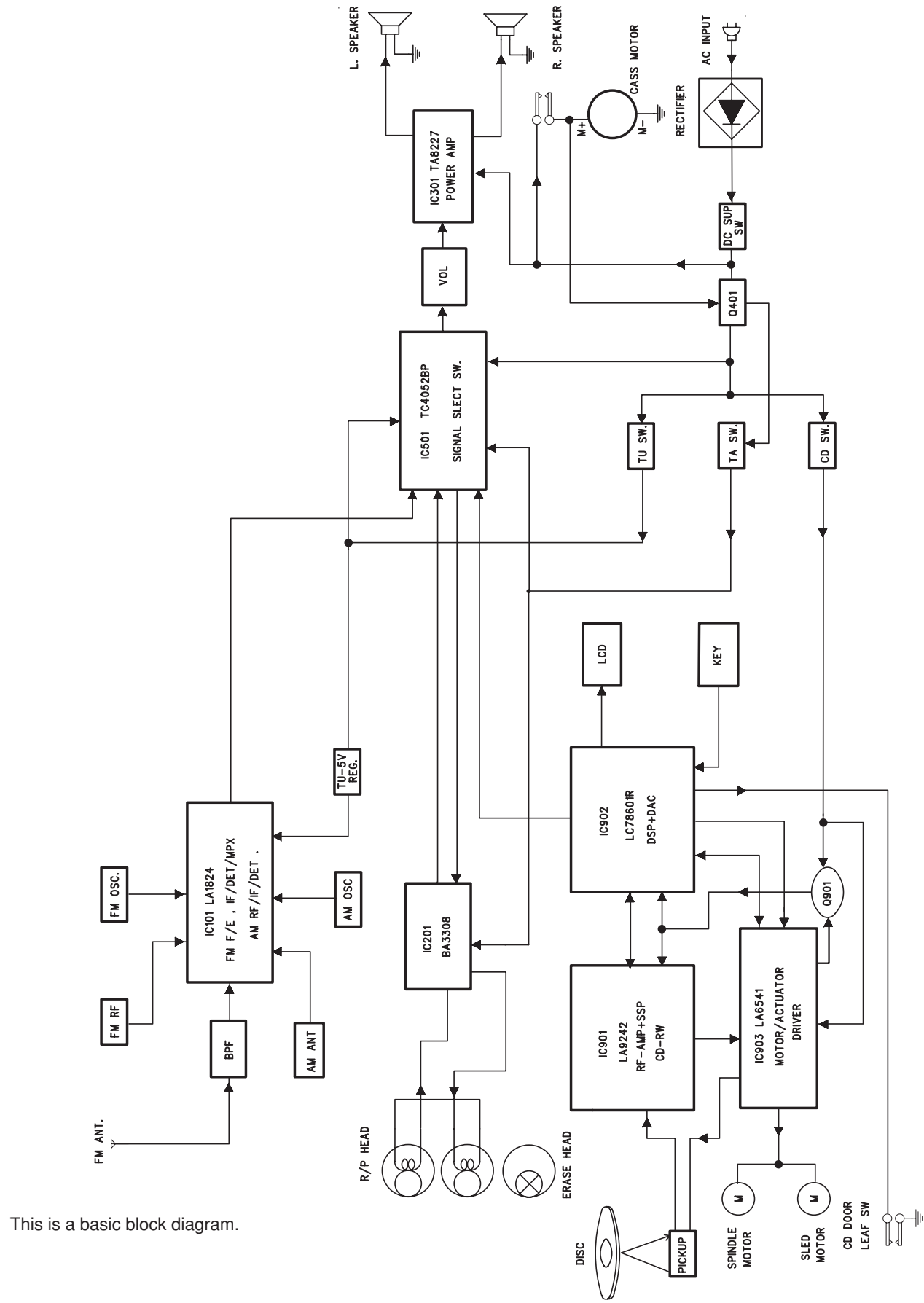


This is a basic schematic diagram.





This is a basic wiring diagram.



This is a basic block diagram.



SANYO Electric Co., Ltd.
Osaka, Japan